Vibrio parahaemolyticus Management Plan

Summer 2012

Revised May, 2012

New Jersey Department of Environmental Protection

Bureau of Marine Water Monitoring

and

New Jersey Department of Health and Senior Services

Seafood / Shellfish Project

1. Introduction

Vibrio parahaemolyticus is an organism that occurs naturally in coastal waters. It is not related to pollution, which means that traditional controls for shellfish sanitation related to growing water classification are marginally effective. Instead, the occurrence of this pathogen in elevated levels appears to be related to the interaction of environmental variables such as temperature, salinity, fresh water inflow and tidal flushing.

Vibrio parahaemolyticus is a curved, rod-shaped, Gram-negative bacterium found in the marine and estuarine environment, which, when ingested, causes gastrointestinal illness in humans. Ingestion of bacteria in raw or undercooked seafood, usually oysters, is the predominant cause the acute gastroenteritis caused by *Vibrio parahaemolyticus.* Symptoms typically resolve within 72 hours, but can persist for up to 10 days in immunocompromised individuals.

Procedures for dealing with *Vibrio parahaemolyticus* have been developed over the past several years through the Interstate Shellfish Sanitation Conference. In August of 2007, the conference adopted a plan for managing *Vibrio parahaemolyticus*. This plan was subsequently amended by the Executive Board of the ISSC in June of 2008. The U.S. Food and Drug Administration (FDA) has developed and refined models for risk assessment and require that states implement measures, including restrictions on harvest and transport times, to reduce *Vibrio parahaemolyticus* risk to an acceptable level.

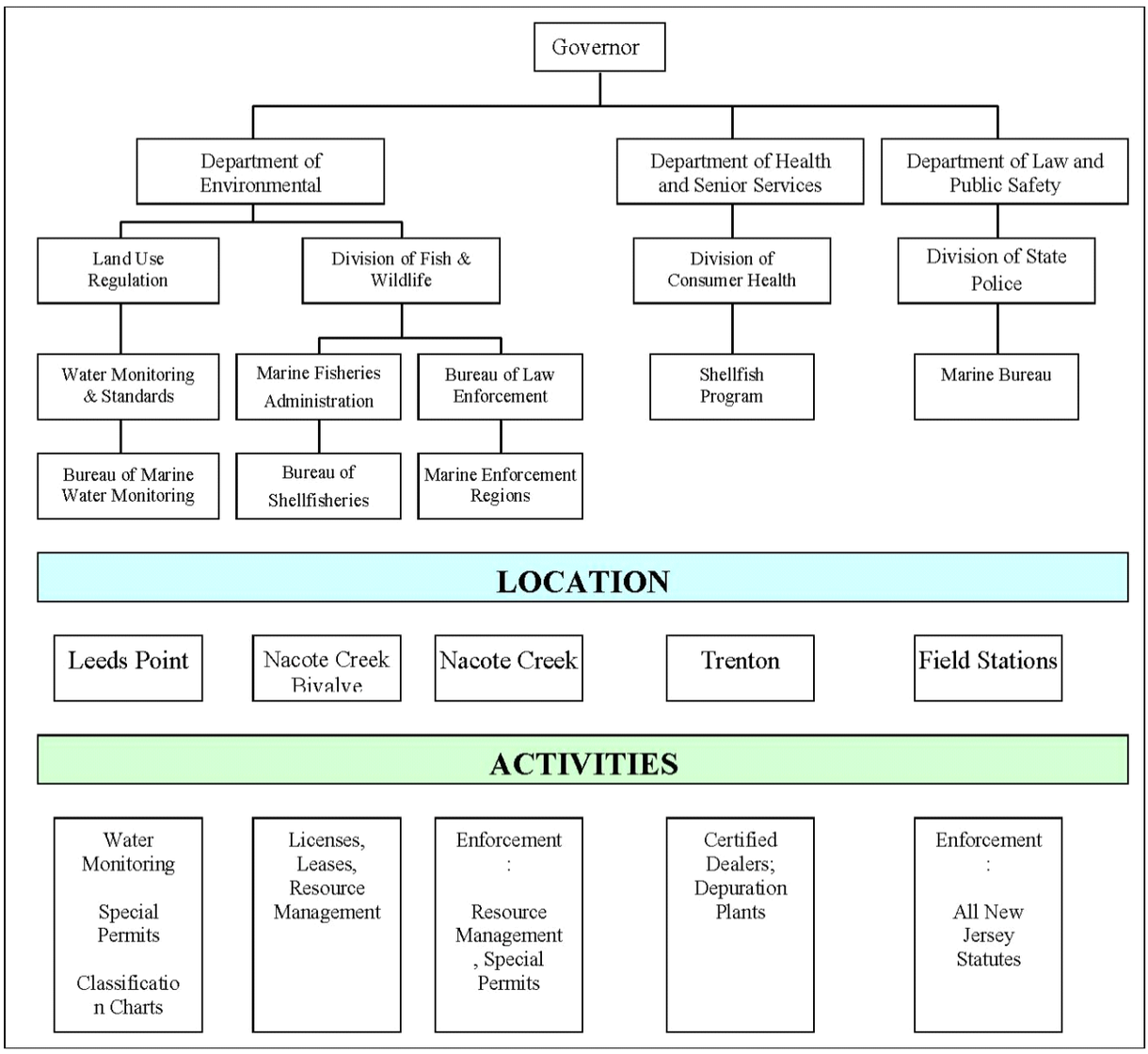
FDA's *Vibrio parahaemolyticus* Risk Evaluation model was run for subtidal and inter-tidal sites within the Delaware Bay and for tidal sites in Great Bay and it was determined the harvest and transport times needed adjustment during the months of June through September to ensure that the risk of *Vibrio parahaemolyticus* remained at an acceptable level. In addition, FDA has documented a number of sporadic illnesses during 2011 attributed to *Vibrio parahaemolyticus* traced to oysters harvested from New Jersey waters. These reported illnesses did not trigger an outbreak, and where not found to be the result of documented time and temperature abuse.

According to the NSSP's Model Ordinance, if a State's *Vibrio parahaemolyticus* risk evaluation determines that the risk of *Vibrio parahaemolyticus* illness from the consumption of oysters harvested from a growing area is reasonably likely to occur, the State shall develop and implement a *Vibrio parahaemolyticus* Contingency Plan for that area. Based on the risk evaluation performed by the New Jersey Department of Environmental Protection and the Department of Health and Senior Services and based on guidance provided by FDA, the following *Vibrio parahaemolyticus* Managment Plan (VP Management Plan) has been developed for 2012.

The VP Management Plan addresses program coordination, response to potential outbreak, post-harvest time and temperature controls, hours of harvest for tidal and inter-tidal, and HACCP plan requirements. In addition, the VP Management Plan recommends additional best management practices to be implemented to further minimize risk from *Vibrio parahaemolyticus*.

2. Coordination of New Jersey Agencies Responsible for Shellfish Sanitation

The National Shellfish Sanitation Program (NSSP) is accomplished in New Jersey through a coordinated effort of five agencies. These agencies, their physical locations, their role in shellfish sanitation and their relationship to one another are shown below. Implementation of the *Vibrio parahaemolyticus* Contingency Plan will require cooperation



and communication among these agencies.

The following agencies have primary responsibility for decision making and implementation of the following aspects of the VP management Plan:

NJDEP/ Bureau of Marine Water Monitoring

1. Analyze water and air temperature data in order conduct a risk analyses as the basis for developing a *V. parahaemolyticus* Control Plan to control of a naturally occurring pathogen.
2. Develop control strategies to minimize potential *V. parahaemolyticus* illnesses
3. Close affected oyster growing areas if outbreaks are epidemiologically associated.

NJDEP - Marine Enforcement & NJ State Police - Marine Bureau

1. Prevent harvest by enforcing closure of implicated growing areas.
2. Ensure compliance with harvest and transport restrictions including harvest hours and times.
3. Enforce vessel requirements including but not limited to shading of harvested oysters.

NJ Department of Health and Senior Services

4. Ensure compliance with time and temperature restrictions including but not limited to dealer and transport.
5. Inspect and enforce certified dealers and ensure required cooling times and temperatures are met.
6. Notification to NJDEP and FDA of confirmed *V. parahaemolyticus* illness outbreak.
7. Initiate, communicate and monitor oyster recall if a growing area is implicated as a result of an illness or due to post harvest mishandling initiating a firm related recall.
8. Notify the shellfish industry and local health jurisdictions in the state of the potential for illnesses due to *V. parahaemolyticus* prior to historical times of onset or at a minimum of once a year.
9. Issue a health advisory to the public about the potential problem and advise the industry to educate wholesalers, retailers, and consumers about the potential problem.

3. Outbreak Response (Vibrio parahaemolyticus)

In the event of confirmed cases of shellfish related food borne illnesses caused by the naturally occurring marine bacterium *Vibrio parahaemolyticus*, the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey Department of Health and Senior Services (NJDHSS) shall follow the guidelines of the National Shellfish Sanitation Program, Model Ordinance "Control Plan for *Vibrio parahaemolyticus*" adopted at the 2007 Interstate Shellfish Sanitation Conference (ISSC) and amended in 2008 by the Executive Board of the ISSC.

In the event that NJDHSS confirms an outbreak involving two or more illnesses from one harvest area within a short time frame, the implicated harvest area must be closed as specified in Chapter II @.01 of the NSSP "Guide for the Control of Molluscan Shellfish." An investigation will be conducted within 24 hrs. to determine whether the illness is growing area related or due to post harvest handling. That action will be handled in the following manner by the NJDEP and NJDHSS.

If post-harvest handling, temperature abuse is not found to be the cause of the outbreak then the following SOP shall be implemented:

1. Harvest Suspension based on *V. parahaemolyticus* illness outbreak investigation.

1.1. Upon receiving verification from NJDHSS that a food borne illness outbreak[1] caused by *V. parahaemolyticus* is significantly associated with the consumption of raw shellfish from a New Jersey harvest area, the Commissioner of the Department of Environmental Protection (or his designee) will suspend harvest in the affected harvest area under N.J.S.A. 58:24.

1.2. The NJDHSS will notify all receiving states and the FDA that a potential health risk is associated with shellfish from the implicated harvest area(s);

1.3. As soon as it has been accurately determined, the NJDHSS shall advise the FDA and receiving states which dealers have shipped shellfish from the implicated area during the 21 days prior to any event and thru the date of the harvest closure.

1.4. NJDHSS initiates and oversees the effectiveness of industry recall of any shellfish from the implicated area remaining

in distribution.
1.5. If the NJDHSS investigation demonstrates that the illnesses are related to post-harvesting contamination or mishandling, SUSPENSION OF HARVEST IN THE AREA IS NOT NECESSARY and the suspension will be lifted.
1.6. Collect total *V. parahaemolyticus* sampling of oyster tissue along with temperature and salinity data to run *V. parahaemolyticus* Risk Assessment Model. When predicted risk level is less than 1 in 100,000 servings and no new outbreaks[2], area can be reopened
1.7. The areas of harvest suspension will be patrolled to insure the cessation of harvest.

4. Harvest, Transport and Temperature Control Measures

In order to minimize growth of *Vibrio parahaemolyticus* that can occur under elevated temperature conditions following harvest, the conditions described below will be placed on harvest and handling of oysters from New Jersey waters in 2012.

It is critical to harvesters and certified dealers to show that documentation exists that demonstrate that the conditions described below were met, as this will satisfy the Model Ordinance (Chapter 2 @.01-D) condition for determining whether the shellfish growing area will be closed following a Vp outbreak or if the illnesses are related to post harvest mishandling whereby the growing area is not implicated and is not closed.

The following restrictions apply to all commercial oyster harvest from New Jersey:

Harvest from subtidal waters

1. June 7 - Sept 4, 2012 - Harvest may occur from 6am to 11 AM (5hrs)

Transport from subtidal waters

2. June 7 – July 31 and September 1 - September 4, 2012 – Oysters must be offloaded by 1pm (2hrs) and must be delivered to forced air refrigeration by no later than 2 PM (3hrs total).
3. August 1 – August 31, 2012 - Oysters must be transported and offloaded by 12:30 pm (1 1/2hrs) and must be delivered to forced air refrigeration by no later than 1:30 PM. (2 1/2hrs total)

It is recommended during August, when transport time is reduced by 30 minutes, that consideration is given to harvesting from beds closer to the landing site such as Shell Rock, DB.

Harvest from intertidal waters

June 7 - Sept 4, 2012 – Harvest and transport to refrigeration of oysters from the intertidal waters of New Jersey is limited to four (4) hours (inclusive of the 1hr transport time). The four-hour time period begins after the first oysters to be harvested are exposed to the air by the receding tide. Oysters must be refrigerated within four (4) hours after the first oysters to be harvested are exposed to the air by the receding tide.

It is recommended that business practices be modified for intertidal harvesters/growers minimize the time oysters are exposed prior to refrigeration. This includes, but is not limited to:

4. Culling and sorting the day before harvest and returning the product to the water for a full tide cycle. This will allow the product to be harvested immediately when exposed on the next day's low tide and immediately transported to refrigeration.
5. Harvest and transport of oysters to refrigeration prior cleaning and maintaining oyster cages.
6. Priority should be given to oyster harvest and transportation.

Additional Mandatory Requirements/Prohibitions for All Harvesters

7. Shading of the product must be in place on both the boat (N.J.A.C. 8:13) and during overland transport to the initial NJ certified dealer.
8. Harvesters shall employ the use of a hand held laser thermometer on board. The harvester/s will record the product temperature (shell and/or meat) of the shaded product at offloading by 1pm and the time the temperature was taken.
   Harvesters will record the offloading temperature daily and report that temperature to the first receiving certified dealer. Harvesters will keep the daily offloading temperature log for *Vibrio parahaemolyticus* season on the boat. If the harvester is also the first receiving certified dealer, offloading temperatures will be kept at the certified dealer's establishment.
9. Off-loading of shellstock from boats directly onto interstate trucks intended for same day interstate shipment is

prohibited.

10. No product shall be shipped the same day it was harvested.
11. Survey instrument, annual evaluation of the forced-air unit owned by Certified Dealers:
    12. Operating and in good repair
    13. Unit is capable to hold a maximum day's harvest amount while providing adequate circulation of cold air
    14. Unit is capable to hold day's harvest while holding other products
    15. Compressor is sized adequately and can cool product down to (50) degrees F or less (40 degrees is optimum) in 12 hours (overnight).
    16. NJDHSS requires verification of adequate refrigeration and cooling prior to certification.
    17. Continuous temperature recording unit at the initial dealer recording the ambient temperature of the product with back-up alarm.

Note: Attached you will find resource information in order to assist your purchase and installation of a recording thermometer on your forced air unit. The cost is inexpensive to install this device. The New Jersey Department of Health & Senior Services will not certify the Certified Shellfish Dealer operation unless a recording thermometer is installed on your forced air unit. This will allow the Health Department to inspect and insure that your forced air unit is always up and running without question.

HACCP PLANS:

Certified Dealers shall record the time and the temperature of the product when it is offloaded and received by the Dealer. This can be done by utilizing a laser (infrared) thermometer (gun type) and "shooting" the temperature of the shell or by placing a probe thermometer between the shells and checking the meat.

After being held overnight and before releasing the product for interstate shipment you are to record the time released and the temperature of the product. Product shall not be released for intrastate and/or interstate shipment until 5a.m after overnight holding.

The implementation of the HACCP Plans includes monitoring records to indicate the time and temperature as indicated above, the establishment of Critical Limits and Corrective Actions when Critical Limits are Not Met.

Please alter your HACCP plan for your establishment to state that this will be performed.